Mission Accessible: An Instructional Designed Website for Creating Accessible, Digital Content

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Abstract: An increase in population of students with disabilities and popular uses of online, instructional materials increased the number of issues related to inaccessible, Web content. Part of the role of disability services is to inform the teaching faculty about their legal responsibilities to provide accessible course materials for students with disabilities. Current training methods conflicted with working and training schedules, and instructors' time for disability training is limited. Furthermore, a system for tracking who received training is nonexistent. The circumstances prompted a need for an efficient and effective method for disability training. With a focus on online accessibility, the purpose of this instructional design project was to evaluate the impact of an instructional website on creating accessible, digital content for online instructors on the Distance Committee at a federally funded, postsecondary school in Hawaii. The primary goal was for instructors to value the importance of creating accessible course materials through training; the secondary goal was to incorporate universal design. ADDIE (Analyze, Design, Develop, Implement, Evaluate), Constructivism, Connectivism, Keller's ARCS (Attention, Relevance, Confidence, Satisfaction), and Web 2.0 technologies were employed for designing experiential learning, community building between the teaching faculty and disability services, engagement, and for modeling accessibility. Participants eventually included other online and former online instructors, face-to-face instructors, and online, instructional designers. Findings from questionnaires, correspondence, and activities were analyzed and revealed that the instructional designed, asynchronous, online modules are a viable means of training. The findings prompted refinement on training logistics and course designs.

Introduction

Disability services (DS) at the University of Hawaii Maui College (UHMC) is comprised of two individuals—the disability coordinator and the assistive technology specialist. The department currently services over 250 students on the islands of Maui, Lanai, and Molokai. Over the last few years, the number of students with disabilities (SWD) has

significantly increased, and so have barriers that are related to accessing digital content by SWD. Staff and faculty face barriers of their own as conflicting schedules and time prohibit attendance to on-campus training that are purposed to promote disability awareness and practices. Therefore, training sessions have been unsuccessful; attendance by the teaching faculty has been extremely low at four to eight attendees per session. The school's website that is dedicated to DS was promoted several times through the school's broadcast email system, Maui Announcements, but anecdotal evidence from faculty members revealed that they have not visited the site, and information gathered from the website's analytics that recorded the number of visits to the site were very low. In order to address disability training, UHMC's disability service resolved to disperse information via small group meetings and one-on-one conferences with the teaching faculty.

An asynchronous, interactive website designed to teach about Web accessibility in an effective and efficient manner is the proposed resolve. The teaching faculty would be able to access the course website any time and from anywhere, and in doing so, be provoked to administer access to SWD. Time spent on repetitive remedies for common disability issues would be avoided. Most importantly, SWD would lawfully and deservedly have equal access to an education. Additionally, students who have not been formally diagnosed with a disability, who chose to withhold the disclosure of their disability, and diverse learners would benefit. Mission Accessible was meant to provide experiences that would bring about a change in attitude, and hopefully, in practice. Therefore, the purpose of this instructional design project was to evaluate the impact of an enrichment website on creating accessible, digital content for the teaching faculty at the University of Hawaii Maui College. Research questions that guided this study are: RQ1) What is the impact of training on teaching faculty participants' perceptions? RQ2) How do teaching faculty participants rate the applicability of the concepts to their own teaching practice?

Literature Review

Students with disabilities represent nearly 11% of college students in the United States; however, recent estimates are significantly higher at 26% (Herbert et al., 2014). Unfortunately, persistence and graduation rates are far lower than students without disabilities (Herbert et al., 2014). The future for SWD seems even more dismal as "students having print-related disabilities like dyslexia or visual impairments, as well as the increased use of electronic media and distance learning" give rise to barriers to educational material (Cory, 2011, p. 31). Gladhart (2010) states,

> The technologies involved in providing access to students can actually deny access to populations of students with disabilities. Web-based course materials and online content create new challenges for students with disabilities. Students with visual disabilities encounter Web sites and course media unreadable by screen readers. Disorganized and cluttered course Web sites confuse all students, but especially those with learning and cognitive disorders. Uncaptioned videos, podcasts, and video conferences limit access to students with hearing disabilities (p. 186).

Fichten (2009) reiterates that these technologies have altered the experiences for learners with visual disabilities. Zebehazy & Wilton (2014) state that SWD may not be able to function independently, which is contrary to the concept of accessibility.

Most teaching faculty members are competent in specific subject areas that do not necessarily include DS. However, federal laws and policies mandate that all public and private postsecondary institutions, unless wholly owned and operated by a private or religious entity, provide SWD access to an education and reasonable accommodations and modifications in procedures and practices, so that SWD will have equal access to their programs and activities (Office for Civil Rights, n.d.). While part of the responsibilities of a school's DS is to realize the mandates, the teaching faculty is obligated to comply with mandates as well. This requires the teaching faculty to know about DS, about providing accommodations, and about creating accessible, digital content.

Research on faculty attitudes towards disability reveal that, "faculty who receive training opportunities are more likely to understand and carry out legal responsibilities affiliated with disability, minimize instructional barriers, know about available campus resources, and invest extra time helping students" (Lombardi & Murray, 2011, p. 51). Results from a similar study by Park, Roberts, and Stodden (2012) where faculty members trained in DS over a three-day period claim,

> All faculty participants responded that, during the fall semester following the Summer Institute, they worked proactively with their campus student disability office to provide reasonable accommodations for SWD, sought to make course materials more available and accessible for students, and presented information that they learned from the Summer Institute through multiple means to other faculty (p. 380).

Because the UHMC website on DS, although informative, is a reference and is not intended as a formal method of instruction, and because other measures of sharing information about disabilities services have not been efficient or successful, a proposed solution to support SWD with respect to faculty's limited resources is to create an online, enrichment course. "The term, enrichment, suggests that faculty members are not producing but creating" (Stabile, 2013, p. 76). The reason for using the term, enrichment, as opposed to training or development, according to Stabile, is that the "paradigm fosters an 'interdisciplinary spirit' through experience" (as cited in Dhillon, 1970). Stabile (2013) states that "this approach illustrates that the institution is committed to the success of faculty and students and prompts faculty to become more concerned with student success and the overall success of the institution" (p. 76).

Project Design

Mission Accessible was founded on the instructional design model, ADDIE, where four of five phases, Analyze, Design, Develop, and Implement, occur sequentially. Each of

these phases is iterative through formative evaluations with the fifth phase, Evaluation. Formative and summative evaluations occur in this last phase.

Instructional Designs. The enrichment course was designed with the cognizance of learners' time, enjoyment, and gain. Constructivism, Connectivism, Keller's ARCS (Attention, Relevance, Confidence, and Satisfaction), and Web 2.0 technologies were employed to facilitate these considerations. The Mission Accessible website housed mini-modules called "accesses." Initial accesses served as prototypes for future accesses. The choices of disability topics were discussed with the disability coordinator and narrowed down for this project—accessible, digital content in regards to videos, color, links, images, and Portable Document Formats (PDFs). Each topic, or access, was researched to create accurate, instructional content. Specific subtopics within each topic were selected according to importance or a "need to know immediately" basis to address time limitations. One to 1.5 hours were allowed for this study.

Educational Theories – Constructivism and Connectivism. Constructivism supported the asynchronous experience by allowing "learners [to] actively create knowledge in a personally relevant and meaningful manner" (Moisey & Hughes, 2008, p. 428). An example of constructivism could be seen in Access 3: Images, where a participant constructed knowledge on how to create accessible images by observing and interpreting examples and non-examples of images and then formulating rules according to their personal understanding. A participant then applied what was learned by creating a poster using accessible color, an image, and a link in progressive activities.

Connectivism also supported the asynchronous experience in that it was used to make "connections with ideas, facts, people, and communities" (Anderson, 2008, p. 49). As part of the school community, a participant's sharing of ideas and experiences was encouraged to help formulate best practices for this campus. Learning about accessibility and discussing accessibility concepts would start the conversations needed for addressing accessibility. This was important to DS, since procedures that involve disability practices are evolving. While some procedures are clear-cut, some are complicated, and everyone needs to be a part of the process. To foster connectivism, participants were encouraged to share their ideas, research materials, and start their own discussions.

Strategy – Keller's ARCS. Concepts and procedures used to create accessible, digital content are not complex; however, the ability to retain the interests of busy professionals who set aside time to learn about accessibility practices presented a challenge. According to Chan-Lin (2009), "An important facet of effective Web-based instructional design is the consideration of learning activities to stimulate students' learning motivation" (p. 90). To address the anticipated challenge, Keller's ARCS model for motivation was chosen as the instructional strategy (Ally, 2004). The design of the course attempted to capture participants' *Attention* by tending to diverse learning modalities and constructing knowledge through authentic learning. Participants would find accessibility strategies beneficial to their profession, and therefore, *Relevant*. Participants gained *Confidence* through sequenced activities from "simple to complex" or from "known to unknown" (Ally, 2004, p. 29). Applying, creating, sharing, and receiving feedback from what was learned addressed S*atisfaction*.

An example of how Keller's ARCS was used can be found in Access 2: Color. Participants learned how to create accessible color by formulating rules using examples and non-examples of color in pre-and posttests (*Attention*). Answers could be changed during tests, explanations for each answer could be reviewed at the end, and the quizzes could be retaken as many times as needed (*Confidence*). Tests were scored, but not graded. After short readings, a participant created accessible color using a slide and tested accessibility with a download of a color analyzer (*Relevance and Satisfaction*).

Technologies Used for Development. Web 2.0 technologies were used to address diverse learning modalities and to demonstrate accessibility or inaccessibility of technologies. Various technologies were used to present content and to serve as examples, non-examples, or solutions for accessibility. Accessible technology is encouraged in universal design "to increase the responsiveness in learning environments" ("Selecting Media and Technology," n.d.).

Videos were created using *PowToon*, *Tellagami*, and *iMovie*. A *YouTube* video was reused, shortened with *TubeChop*, and remixed with an embedded quiz using *Blubbr*. An infographic of the course scope and sequence was created with *easel.ly*. Pre- and post-quizzes for the access on color were created with *examtime*. Files could be accessed using *Dropbox*. Slide presentations were produced using *PowerPoint* (PPT) and *Haiku Deck*, and *SlideShare* was used to share the slides. An audio file was made using *Kurzweil 3000* and uploaded to *SoundCloud* for sharing.

Technologies Used by Participants. While several technologies were used to create the enrichment course, participants were asked to use the following (in addition to Laulima and website): *Flipgrid* for creating an introduction video, *Google Slides* for scaffolded activities, and a download of *Color Analyzer* to test for color accessibility.

Usability Designs. The vehicle for this instructional design project was a blend of something familiar and something new. The blend served as a bridge for using a website as a course. Nearly all instructors at UHMC use Laulima, the Learning Management System (LMS) for the University of Hawaii system; however, the static interface limited design options. A flexible format with visual appeal was desired to tend to diverse learning modalities. Therefore, a link to the Mission Accessible website that could be accessed through a course site in Laulima was the blend of something familiar--Laulima, with something new--using a website for instructional modules. Another reason for using Laulima was to access the announcements and discussion tools for activity submittals, peer interactions, sharing of resources, and for tracking participants. A design benefit was that both Laulima and the course website could be viewed side-by-side whereas only one tool at a time is viewable in Laulima (see Figure 1).

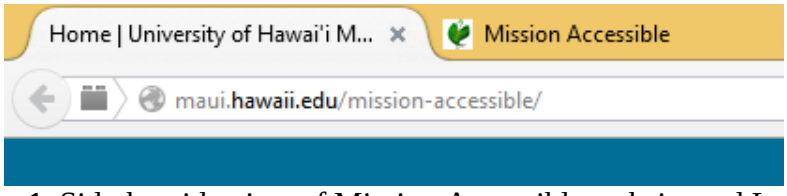

Figure 1. Side-by-side view of Mission Accessible website and Laulima

A Home page to introduce the enrichment, a Course Map page for navigation, an Introduction page for participants to introduce themselves—the initial activity to form a community, and a Conclusion page for final thoughts completed the website. Website navigation to pages could be done through links in the sidebar or from the Course Map page. A button at the bottom of each page directed the user to a logical, subsequent page. Icons were used for visual interest, to communicate content, and to break-up textual information.

A key design feature was that the Mission Accessible course website and components serve as a model of accessibility. The website followed guidelines developed by the Web Accessibility Initiative (http://www.w3.org/WAI/). The modeling of accessibility provided another scaffold for instruction; a participant could experience accessibility on the Web through instructional content created with Web 2.0 technologies. Icons of keys explained accessibility features of a technology. The *Web Accessibility Evaluation Toolbar* (WAVE) was used to assess the website's overall accessibility.

Methods

Participants. While accessibility practices for course materials are applicable within online and face-to-face environments, the target audience for this instructional design project were online instructors on UHMC's Distance Committee (DC) (*n*=2) as suggested by the disability coordinator. Because only two agreed to participate, several attempts for recruitment were necessary. The participation pool eventually expanded to include all online instructors (*n*=3), former online instructors (*n*=2), instructional designers (*n*=3), and face-to-face instructors (*n*=2) for a total of 12 participants. The recruitment process started in December of 2014 with attendance at a DC meeting. Additional recruits were sought through regular email and through Maui Announcements. The recruitment process continued until midway of the project in 2015.

Instruments. Quantitative and qualitative data were gathered from confidential, not anonymous, pre- and post-questionnaires; the names of responders and their answers were known and were kept private. The pre-questionnaire included the following sections: *Background*, *Previous Training*, *Accessible Course Materials*, and *Inclusive Classroom*. The post-questionnaire included sections: *Accessible Course Materials*, *Inclusive Classroom*, and *About Mission Accessible*. Multiple choice, check box, and short answer questions were used to investigate participants' demographics, and 5-point Likert scale questions were used to assess participants' actions and attitudes. Short answer questions were also used to collect qualitative data in the *About Mission Accessible* section from the post-questionnaire.

Questions from *Accessible Course Materials* and *Inclusive Classroom* sections were adapted after Lombardi's (2013) *Inclusive Teaching Strategies Inventory* (ITSI). Whereas each item in ITSI are used to report faculty actions and attitudes, only the pre-questionnaire for this study reported faculty actions; these items were used for additional demographic analyses. The post-questionnaire for this study reported faculty attitudes.

Answering all questions was a requirement for completion. A responder could complete each questionnaire only once. If a question was skipped or left blank, the responder would not have been able to progress. Data was automatically collected and organized in Google forms as the responder completed the questionnaires. Prior to conducting analyses, quantitative data from participants (*N*=12) were reorganized into Excel spreadsheets. Mean scores were calculated for questions from *Accessible Course Materials* and *Inclusive Classroom* sections. Qualitative data from *About Mission Accessible* section and emails were organized, quantified, and extraneous comments such as, "Great job!" were eliminated. Course activities were reviewed for accuracy.

Results

The *Background* and *Previous Training* sections of the pre-questionnaire provided participant demographics (*N*=12). Two-thirds of the participants (*n*=8) have been teaching at the postsecondary level for more than five years, and nearly everyone (*n*=10) taught at least one student with a disability in the last five years (see Table 1. Background).

Table 1. Background

Factor	Scale	Respondents	Percent
Years of teaching at the postsecondary level	1-5	4	33%
	6-10	1	8%
	11-20	5	42%
	20+	2	17%
Number of college SWD worked with in the last 5 years	0	2	8%
	1-5	4	34%
	6-10	3	25%
	11-20	0	---
	20+	3	25%

Note. Answers from open-ended question on years of teaching were organized according to a scale for ease of interpretation.

The section on *Previous Training* revealed who received training, what kind of training was received, and how much training was received. If no training was received, respondents were instructed to move on to the next section. Those who received previous training either attended a workshop or took one or more courses. Participants who identified training from reading books, articles, or visiting websites were seen as not having previous training. Out of 12 respondents, seven received previous training; five

received no training (see Figure 2). Of the seven who received training, six received from four to over 10 hours of training.

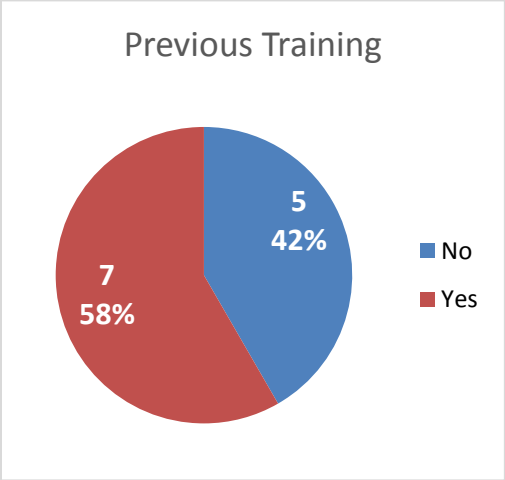

Figure 2. Number of participants regarding previous training

In the section, *Accessible Course Materials*, a 5-point Likert scale (Pre: 1=Never, 5=Always, and Post: 1=Strongly Disagree, 5=Strongly Agree) was used to evaluate actions before training and attitudes after training. The action responses contributed to participant demographics. An example question format from the pre-questionnaire read, "*I* post electronic versions of course handouts." An example question format from the post-questionnaire read, "*I believe it's important to* post electronic versions of course handouts." Likert scale responses were reported as mean scores (*M*) for ease of interpretation (see Table 2. Accessible Course Materials).

Table 2. Accessible Course Materials

Factor	Pre- *M*	Post- *M*
Post electronic versions of course handouts	5.00	5.00
Make sure that all videos are captioned	2.33	4.75
Make sure that all colors are selected according to standards	2.92	4.67
Make sure that all images have alternative text	3.00	5.00
Make sure that all links are created according to standards	3.75	4.92
Make sure that all documents are readable with a screen reader	3.17	4.92

Note. Factor means reported as average of item scale for ease of interpretation.
Pre- (Action): 1=Never, 5=Always
Post- (Attitude): 1=Strongly Disagree, 5=Strongly Agree

The section, *Inclusive Classroom*, followed the same format and Likert scale rating that was used for *Accessible Course Materials*. It assessed participants' current practice and perceptions toward universal design. Mean pre- scores ranged from 3.67-4.67; mean post-scores ranged from 4.75-4.92 (see Table 3. Inclusive Classroom). Universal design (UD) is "the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design"

(*http://www.ncsu.edu/ncsu/design/cud/about_ud/about_ud.htm*). Universal design is the secondary goal; automatically designing for diverse populations benefits all learners.

Table 3. Inclusive Classroom

Factor	Pre- *M*	Post- *M*
Use interactive technology to facilitate class communication and participation	3.67	4.75
Present course information in multiple formats (e.g. lecture, text, graphics, audio, video, hands-on exercises)	4.42	4.92
Supplement class sessions and reading assignments with visual aids (e.g. images, videos, diagrams, interactive simulations)	4.67	4.75

Note. Factor means reported as average of item scale for ease of interpretation.
Pre (Action): 1=Never, 5=Always,
Post (Attitude): 1=Strongly Disagree, 5=Strongly Agree

In the last section of the post-questionnaire, *About Mission Accessible*, participants were asked to rate the relevancy, engagement, their confidence, facilitator presence, enjoyment, and worthiness of the enrichment. Mean score ranges from a low of 4.08-4.75 reflected participants' perceptions and course outcomes (see Table 4. About Mission Accessible).

Table 4. About Mission Accessible

Factor	Post- *M*
The course content is relevant to my profession.	4.41
I found the enrichment to be engaging.	4.25
I am more confident about my abilities to provide accessible, digital content after completing the enrichment.	4.08
The facilitator was available via email or online discussion.	4.75
I enjoyed the enrichment.	4.25
The time spent on the enrichment was worth my while.	4.25

Note. Factor means reported as average of item scale for ease of interpretation.
1=Strongly Disagree, 5=Strongly Agree

Also from the section, *About Mission Accessible*, from the post-questionnaire, participants were asked to identify three ways to improve this e-learning enrichment. Data (*N*=26) were categorized according to type and design: Scaffolding (ID), Clarity of Instructions (ID), Technology (UD), Time (ID), Navigation (UD), and Peer Presence (UD) and listed according to frequency beginning with the most frequencies. Positive comments were considered irrelevant and were not counted. Table 5 shows categorized suggestions for improvement from Post-Questionnaire, question 4.8. All suggestions, directly quoted, are itemized in Appendix A.

Table 5. Suggestions for Improvement from Post-Questionnaire (Question 4.8)

Category	Design	*N*	Frequency
Scaffolding	Instructional	26	8
Clarity of Instructions	Instructional	26	6
Navigation	Usability	26	4
Technology	Usability	26	3
Time	Instructional	26	3
Peer Presence	Instructional	26	2

The last question from the post-questionnaire in the *About Mission Accessible* section provided participants with an opportunity to ask questions or generate any comments they might have. No questions from the participants were asked. Comments (*N*=9) were overwhelmingly positive and were categorized according to type: Course Content or Design. Table 6 shows categorized comments from Post-Questionnaire, question 4.9 Comments, directly quoted, are itemized in Appendix B.

Table 6. Positive Comments from Post-Questionnaire (Question 4.9)

Category	*N*	Frequency
Course Content	9	6
Design	9	3

Discussion and Conclusions

The main purpose of this study was to find the impact of disability training on participants' perceptions toward creating accessible, digital content. The initial step was

to find discrepancies between instructors' teaching and disability experiences (refer to Table 1) and use of online materials (refer to Table 2). Participant demographics were used to understand length of time working at the postsecondary level, previous disability training, and encounters with SWD in the last five years. Sixty-seven percent (*n*=8) had been teaching at the postsecondary level for over five years, 42% of participants (*n*=5) had not received any formal, disability training, and 84% (*n*=10) worked with SWD in the past five years. However, 100% of participants post electronic versions of course handouts, and 100% believed that it is important to post electronic versions of course handouts. It is possible to speculate that many digital course materials created by untrained teachers may not be accessible. The apparent increase in accessibility issues can be attributed to inadequate training. This substantiates the need for accessible training. The asynchronous, online course, Mission Accessible, is considered a viable means of disability training to be used in addition to existing training methods.

What was the impact of Mission Accessible on perceptions (RQ1)? While quantitative data appear to show that training positively impacted attitudes or perceptions toward creating accessible, course material, further investigation is needed to support the claim (refer to Table 2). The reason is that the modified format of ITSI, separating actions for the pre- and attitudes for the post-, may have been an illogical approach to the study. For instance, a mean score of 2.33 (action), making sure that all videos are captioned, cannot translate that a mean score of 4.75 (attitude), believing that it's important to make sure that all videos are captioned, reflected a positive impact as a result of the training. At the same time, the question to ask is, if an instructor believes it is important to make sure that all videos are captioned (attitude), then why does the instructor not make sure that all videos are captioned (action)? The same question can be asked for all factors (refer to Table 2). Therefore, quantitative data from adapted ITSI questions are inconclusive. However, qualitative data from participants' comments evidenced a positive influence of training toward valuing the creation accessible materials (refer to Appendix B).

How applicable are the concepts to participants' teaching (RQ2)? Any instructor who posts online material would find the concepts applicable to their own practice. The first factor from the Accessible Course Materials sections from the pre- and post-questionnaires (refer to Table 2) reveal that all participants currently use videos, color, images, links, and digital documents for course instruction. Therefore, the instructional objectives are extremely relative and useful.

Is the adoption of universal design in the future for UHMC? Creating digital access is a facet of universal design. Small differences between pre- and post-questionnaires from the Inclusive Classroom appear to demonstrate that participants are already implementing strategies to include diverse learners. However, data is inconclusive, and future research may investigate further the implementation of universal design at UHMC. Though inconclusive, a question to ask is whether the small differences between pre- (action) and post- (attitude) are reflective of participants' skills and commitment toward meeting all students' needs. It is possible to speculate that participants already practice some concepts of universal design.

The course requires refinement. Qualitative data revealed that participants desired learning objectives, clear instructions, additional scaffolds within modules, more time, and some voiced difficulty regarding technology. Stated module learning objectives were excluded, because I thought that the title for each access was sufficient (i.e. Creating Accessible Videos). Instructional content was kept to a minimum, because I was concerned about the investment in time of 1.5-2.0 hours to complete the course. I believe that the instructions were adequate. Because of the comments that were made, I suspect that several participants did not read the instructions in Laulima before accessing the website. Asking participants to use technology--a website, *Flipgrid*, and *Google Slides*--posed problems. Most teaching faculty are accustomed to solely using Laulima, most do not have access to a computer camera which was required for personal introductions, and although everyone had access to Google Slides, it did not mean that instructors used or knew how to use it. The study was intended for online instructors, but included face-to-face instructors and online, instructional designers. A question to ask is whether the inclusion of these added groups might have impacted learning experiences and responses to the course. In spite of the critical comments, no one voiced dissatisfaction toward asynchronous. Positive comments revealed satisfaction, positive experiences, and newfound knowledge. Overall, Mission Accessible has shown to be a viable tool for training, and the incorporation of instructional theories, strategy, and tools were successful.

In response to feedback, improvements in design have been made. Added to the course was a video tutorial for Flipgrid, three additional steps to break down instructions in Laulima, and the option to use *PowerPoint* instead of *Google Slides* for activities. Learning objectives that focus on secondary and other skills, and lessons that scaffold learning within each module are being produced. Future developments consider the option to take one module at a time and consolidating the course using Canvas.

Limitations. There are several limitations with this study. First, the views of the small number of participants in this study may not be representative of the entire teaching faculty. Second, assessments from activities and discussions are too few in number to demonstrate whether trained or experienced participants were able to create accessible content after training. Third, the modified question format from ITSI could not be used to interpret data adequately, since current actions along with the intervention of training may not necessarily equate to a change in attitudes. Fourth, there is always a possibility of respondent bias. Although questionnaires were confidential and self-reported, respondents may have been influenced positively or negatively by peers.

Just as ramps are automatically drawn into building designs, accessible instructional material can be created in the design process for the benefit of both students with and without disabilities. Universal design is not mandated by laws or policies; however, the direction for the future is to shift from the mindset of "being required to" provide accommodations to "automatically considering" the needs of diverse learners. Complying with laws is not enough. "There is an inherent tension in deciding how much to let the law guide services, and how much to use DS resources to . . . create a campus that is inclusive and welcoming to all students" (Cory, 2011, p. 27).

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APPENDIX A
Categorized Suggestions for Improvement from Post-Questionnaire (Question 4.8)

Scaffolding (ID)	-The section on pdf was hard for me to understand and I feel most incompetent providing accessible pdfs. The technical language about pdfs was too much for me. I needed a simpler, non-techy explanation of what the issues are and how to fix it. Right now I still feel clueless. -Interactive quizzes (Quizmaker) -Introduce the purpose (the "what" and the "why" of the course at the very beginning or at the beginning of the first video rather than at the end). -Hands on examples -Slideshows were great but I think some of them, particularly the pdf one, would benefit from narration. -Test users after accessible and non-accessible lesson and compare scores. -Video tutorials -Ask which sense is their weakest when learning (reading, listening, eye/hand coordination, attention span, etc.)
Clarity of Instructions (ID)	-Have a single handout that outlines each step. -Initial instructions might be a bit more detailed. -More explanation may be needed for the more tech challenged people like me☺ Step by step instructions on linking (although I did figure it out). Perhaps, it's there but I was pressed on time to complete this. -A step-by-step instruction of how to get started -Learning objectives were absent for each module. Adding learning objectives would make learning expectations easier. -The only thing that was a little less clear was understanding what the purpose of the course was and what to expect at the very, very beginning. I loved the graphic of the path and understood how the course would be laid out, but it wasn't until the end of the intro video that I understood exactly we were going to learn. Once I got into the module, it was clear though.
Technology (UD)	-I was overwhelmed with the technology and the time to learn using it so did not do activities. -There were many skills and technology requirements before taking the training. It would be beneficial to list what those requirements are before starting the training. -List of technology requirements required to participate -Do I need a webcam to use Flipgrid?
Time (ID)	-I am sorry that I did not have the time to learn the technologies in the enrichment. -I needed more time - this was my fault for procrastinating, but I wanted to spend more time learning the material. -More time to complete research and complete each access

Navigation (UD)	-Have instructions on the same page as the actual assignment. At the beginning I was a bit challenged, but I did get used to it and it was fine:) -Consolidate the modules with the discussion forums in a single location. -Keep everything in one site.
Peer Presence (ID)	-More interaction -A more narrow timeframe for introductions to allow for connection at beginning

Note. ID = Instructional Design, UD = Usability Design

Appendix B.
Positive Comments from Post-Questionnaire (Question 4.9)

Course Content	-Putting myself in the shoes of students with different disabilities helped me empathize with the variety of challenges these students face. As I make enhancements to my course designs (online and in the classroom) I plan to incorporate more inclusive classroom techniques. -This was an awesome course that I learned a lot from (being tech challenged as I am!) Everything was interesting to me and included many techniques that I will integrate in my courses. -I do appreciate this study and feel it is a relevant and necessary topic to address. -I would be interested in training sessions to gain understanding of how to develop a course to better meet the needs of all students. -Very informative material. I learned a lot more valuable information about accessibility. -Share with all faculty.
Design	-Impressive and professional overall -The website is very well designed with a look and feel that is clean and attractive. Very visually appealing. Navigation is super easy to understand. Modules are easy to read and the organization of information is very clear. The use of icons contributed a lot to understanding the different components of your modules. -The media and graphics are the highest quality and very creative. Extremely good use of technology. Engaging, visually interesting, and fun.